

Research and Development
Project Approval Request

Declass Review by
NIMA/DOD

I. Identification

This project would have been under the category in NPIC's financial plan entitled "Viewers and other Photo Interpretation Equipment." It was not specifically included in this plan because the need for it developed through implication and was further defined in the progress of another development.

II. Objectives

25X1A The proposed project is required to determine feasibility of a system which was devised at [REDACTED] for maintaining automatic registration and magnification compatibility of stereo images being scanned on their High Performance Stereo-Viewer. Such a system is needed to relieve the P.I. from eyestrain and from complex and tedious manual operations while scanning stereoscopic images. The project will involve the fabrication of a breadboard which must demonstrate that the system meets performance goals and can be sensibly incorporated into the High Performance Stereo-viewer.

III. Background

25X1A The scanning, roll-film stereo-viewer is still far from a practical, operational reality. There are significant prototypes to be delivered in the near future which will serve as test-beds for determining usefulness and deficiencies. One is the Rear-Projection Stereo-Viewer to be delivered by [REDACTED] by May 1964; the other is the High-Performance Stereo-Viewer scheduled for delivery by [REDACTED] in August 1964. 25X1A Neither of these devices completely overcomes the problem of scale and shape variations -- characteristics of reconnaissance photography -- which induce not only deviations in registration but also non-fusible stereo fields as the operator attempts to scan over the stereo model. Both systems contain means for manual compensation by the operator, and the Opto Viewer will have a system for automatically approximating compensations for scale and orientation differentials. However, it has been apparent for some time that, before stereo-scanning can be properly evaluated or exploited, a completely automatic system for maintaining stereo-image registration and shape compatibility is mandatory. In the past, technological developments in this area have not suggested feasibility, but it now appears that such a system is attainable. [REDACTED] has proposed a technique which is particularly related to their viewer. If this automation can be developed and adapted to their viewer, a significant break-through will be achieved in this realm.

IV. Technical Specifications

25X1A This development will include a breadboard which comprehensively simulates the scanning/viewing operation of the [REDACTED] High

Performance Stereo-Viewer. To this will be added components designed to sense orientation and scale relationships of conjugate stereo-images and provide the necessary error signals to servo-systems for the purpose of maintaining tolerable limits for scanning. The system will be capable of sensing and maintaining these relationships for the following variables:

1. X and Y translation.
2. θ rotation.
3. M magnification (scale).

It must be capable of maintaining these relationships in spite of considerable variance in shape (tilt and panoramic) and detail (relief) within the conjugate fields.

V. Contractor and Financial Arrangements.

25X1A [REDACTED] is the contractor for this development program. Since the requirement called for a specific application to their equipment which was already under development, no other firms were invited to bid (pending the evaluation of their proposal). Nevertheless, the state-of-the-art in this realm has been investigated at [REDACTED]

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25X1A [REDACTED] None of these companies has yet developed a system which is appropriate to the [REDACTED] Viewer. Should proposals for a general-purpose system be invited, these companies would be well-qualified to bid. The cost of the [REDACTED]

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VI. Coordination.

25X1A The work of [REDACTED] AMS, RADC and ACIC in developing automatic stereo-plotting systems has been reviewed, and the efforts of the contractors most highly recommended by these agencies have been evaluated. The need for such a system has been verified through conferences with other development groups and operational photo interpreters.

VII. Security.

25X1A Because of association with the sponsor, this contract is to be classified [REDACTED] Confidential; the contractor is qualified to hold such contracts.